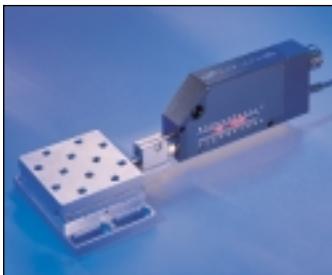




## Key Features

- Closed-loop DC motor driven with rotary encoder
- Adjustable travel to 50 mm
- $\leq 1.0 \mu\text{m}$  bi-directional repeatability
- Speed to 6 mm/sec
- Load capacity to 8 kg
- Convenient manual positioning knob
- ESP Compatible
- 2,000 hour MTBF



The 850G Series is compatible with most standard Newport manual stages and opto-mechanical components like this stainless steel crossed-roller 462-X translation stage.

850G Series

# Closed-Loop Precision Actuators



**850G Series actuators provide high-performance motion control** in a compact, compatible package. The 850G is designed to fit into your existing manual stages and other opto-mechanical components as a direct replacement for a manual micrometer. 850G positioners feature a space-saving design with the motor and lead-screw side-by-side instead of end-to-end like most other actuators. This cuts the actuator's length in half and minimizes the negative effects of long cantilever structural loads on sub-micron positioning repeatability.

**Movable limit switches can be changed in minutes** providing travel from less than 1 mm to a maximum of 50 mm. The electro-mechanical limit switches prevent damage that could occur from actuator over-travel. A manual adjustment knob permits quick and intuitive positioning of the actuator while the motor is off. Convenient laser-marked scales indicate coarse actuator position in both millimeters and inches.

**Our actuators needed to evolve in order to meet your increasing performance requirements.** The 850G Actuator provides a cost effective solution for higher duty industrial and

OEM environments. 850G actuators are CE certified and have been qualified to 2,000 hours mean-time between failure (MTBF).

**The 850G's non-rotating tip can mean the difference between success and failure** in micron-scale positioning applications. A non-rotating tip is essential to avoid torque-induced positioning errors. Even the finest translation stages exhibit a few microradians of abrupt angular tilting every time a rotating tip reverses direction. This can cause several microns of abrupt translation of the payload. Additionally, rotating tips wear and collect debris, leading to non-repeatable motion. Finally, any angular offset between the axis of a rotating leadscrew and the driven component results in undesirable quasi-sinusoidal motion variations.

**For optimal positioning performance and seamless compatibility,** we recommend our ESP and MotionMaster families of motion controllers. When you order actuators and controllers together, each system is factory tested and tuned ensuring perfect out-of-the-box performance every time. Each 850G actuator includes an integral 3.5-meter cable for connection to the ESP and MotionMaster controllers.

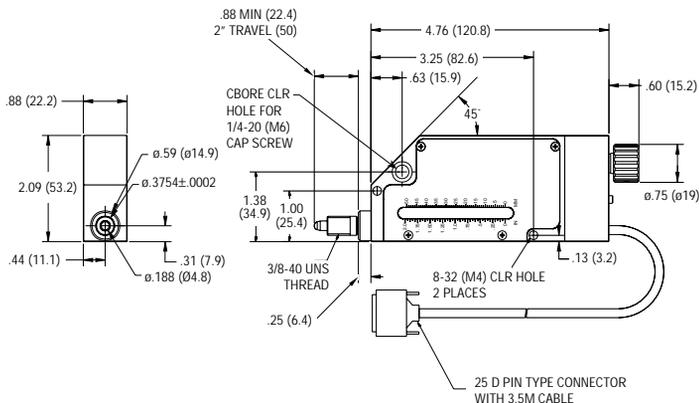
## Specifications

Travel Range	User-variable to 50 mm, movable limit switches
Speed Range (continuously variable)	40 to 500 $\mu\text{m}/\text{sec}$ , standard 6 $\mu\text{m}$ to 78 $\mu\text{m}/\text{sec}$ , low-speed 480 $\mu\text{m}$ to 6 mm/sec, high-speed
Accuracy	<0.1% travel
Bi-directional Repeatability	$\leq \pm 1 \mu\text{m}$ Controller with compensation
Backlash	<20 $\mu\text{m}$ maximum before controller compensation
Minimum Incremental Motion	$\leq 1 \mu\text{m}$
Normal Load Capacity	8 kg, standard 8 kg, low-speed 2.3 kg, high-speed
Side Load Capacity	2.3 kg at full extension
Encoder Resolution	0.05101 $\mu\text{m}$ , standard 0.007985 $\mu\text{m}$ , low-speed 0.60514 $\mu\text{m}$ , high-speed
Cable	3.5 m integral flexible cable with 25-pin sub-D connector
Operating Temperature Range	40° F to 100° F
Vacuum Compatibility	Standard versions available for operation to $10^{-6}$ torr
Safety Standards	CE certified
MTBF	2,000 hours

## Ordering Information

Description	Model
0–50 mm DC Actuator	850G
0–50 mm DC Actuator, Low-Speed	850G-LS
0–50 mm DC Actuator, High-Speed	850G-HS
0–50 mm DC Actuator, Vacuum	850GV6
0–50 mm DC Actuator, Vacuum Low-Speed	850G-LSV6
0–50 mm DC Actuator, Vacuum High-Speed	850G-HSV6

## Dimensions



## Driver Module Options

Driver modules for our ESP and MotionMaster (MM) Series controllers are available for the 850G Series actuators. They are referenced as 2-digit coded options to be used in the motion controller part number.

**ESP300**  
page 4-22



Module Option 1

**ESP6000DCIB**  
page 4-19



Module Option 08

**ESP6000/  
UNIDRIV6000**  
page 4-12/4-16



Module Option 01

**ESP7000**  
page 4-4



Module Option 01

**MM4005**  
page 4-8



Module Option

850F	7D
850F-LS	7E
850F-HS	7F